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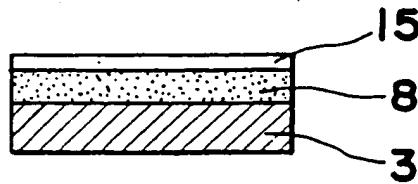
(54) Light transmission paste and metallic copper deposition method using same.

(57) Light transmission paste and a metallic copper deposition method of the present invention can reduce the metallic copper in the desired portion by the applying or the contacting of the light transmission paste on the cuprous oxide and the applying of the light upon the desired portion. Also, the light is

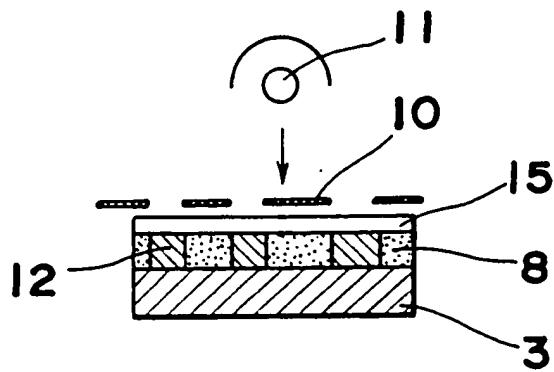
applied through a mask corresponding to the pattern to be obtained, so that the desired circuit pattern may be easily obtained. Further, the metallic copper of high density may be reduced by the contacting or the applying of the metal deposition paste upon the metal of the substrate.

Fig. 1

(A)



(B)



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transmission paste, the other high molecular agent such as polyvinyl alcohol, cellulose acetate or the like may be used. Further, acidic reagent such as hydrogen acid, sulfuric acid, acetic acid, p-toluene sulfonic acid or the like may be used instead of the sulfuric acid. Further, the light transmission sheet by the third invention may be used without the use of the light transmission paste.

Although the gelatin was mixed into the metal deposition paste, the other high molecular agent such as cellulose acetate or the like may be used. Also, although the acidic hydroquinone was used as the reduction component, the other reduction agent such as α -naphthol or the like may be used. Further, although the copper sulfate was used as a metal containing component to be used for metal deposition, metallic salt shown by a general equation CuX or CuX_2 (X is Cl, Br, I, CN, SO₄ or the like) or organic acid metallic salt shown by $(RCOO)_2Cu$ or $RCOOCu$ (R is alkyl group, acyl group or the like). Also, in the present embodiment, the nozzle was used in the applying of the metal deposition paste, the other applying method such as printing or the like may be used.

Also, a skill of causing the medicine in paste state to be previously kept in sheet state for the contacting operation may be used.

As is clear from the foregoing description, according to the arrangement of the present invention, the present invention can educe the metallic copper in the desired portion by the applying or the contacting of the light transmission paste on the cuprous oxide and the applying of the light upon the desired portion.

Also, the light is applied through a mask corresponding to the pattern to be obtained, so that the desired circuit pattern may be easily obtained.

Further, the metallic copper of high density may be educed by the contacting or the applying of the metal deposition paste upon the metal of the substrate.

Although the present invention has been fully described by way of example with reference to the accompanying drawings, it is to be noted here that various changes and modification will be apparent to those skilled in the art. Therefore, unless otherwise such changes and modification depart from the scope of the present invention, they should be construed as included therein.

Claims

- (1) Light transmission paste which includes an acidic material and is transparent with the wavelength of 280nm through 640nm.
- (2) Light transmission paste as defined in claim 1, wherein the acidic material is hydrochloric acid,

nitric acid, sulfuric acid or p-toluene sulfonic acid.

(3) A metallic copper deposition method comprising the steps of applying the light transmission paste upon cuprous oxide provided on the substrate, thereafter applying the light of 280nm through 640nm upon the desired portion, then removing the light transmission paste, and deposition the metallic copper from the cuprous oxide of the irradiation portion.

(4) A circuit pattern forming method comprising the steps of applying the light transmission paste upon the cuprous oxide formed on the substrate, thereafter applying the light of 280nm through 640nm through a mask having an opening portion corresponding to a pattern to be formed so as to educe the metallic copper on the irradiation portion, then removing the light transmission paste and the mask, and forming the desired circuit pattern on the substrate.

(5) A light transmission sheet, as defined in claim 1, wherein light transmission paste is applied upon a support member which is transparent with the wavelength of 280nm through 640nm.

(6) A metallic copper deposition method comprising the steps of causing the light transmission sheet to contact the cuprous oxide formed on the substrate, applying the wavelength of 280nm through 640nm upon the desired portion of the cuprous oxide from the transparent support member side, thereafter removing the above described light transmission sheet, and deposition the metallic copper from the cuprous oxide of the irradiation portion.

(7) A circuit pattern forming method comprising the steps of causing the light transmission sheet to contact the cuprous oxide formed on the substrate, applying the wavelength of 280nm through 640nm upon the cuprous oxide from the transparent support side through a mask having an opening portion corresponding to a pattern to be formed so as to educe the metallic copper on the irradiation portion, then removing the above described light transmission paste and the above described mask, forming the desired circuit pattern on the substrate.

(8) A metal deposition method comprising the steps of causing the metal deposition paste, which includes metallic salt including a deposition metal and a reducing agent for reducing, cracking the metallic salt, to contact the metal provided on the substrate, deposition the metal of the metallic salt in the above described metallic deposition paste on the metallic surface on the above described substrate.

(9) A metallic copper deposition method as defined in claim 3 or 6, further comprising the steps of deposition the metallic copper, thereafter causing the metal deposition paste, which includes metallic salt including copper and a reducing agent for reduc-

ing, cracking the metallic salt, to contact the copper on the substrate, deposition the copper.

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